Inventor: Krassen Dimitrov Serial No.: 09/898,743 Filed: July 3, 2001

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## **AMENDMENTS**

Please cancel claims 16-77.

Please amend the claims as follows:

- 1. (Currently amended) A diverse population of labels, comprising about thirty or more unique labels, wherein each of said unique labels is bound to a nucleic acid molecule by attachment of label monomers of said unique labels to nucleotides in a 1:1 correspondence.
- 2. (Original) The diverse population of claim 1, wherein each of said unique labels further comprises about the same unit signal, or a multiple thereof.
- 3. (Original) The diverse population of claim 1, wherein each of said unique labels further comprises a mixture of two or more different labels.
- 4. (Original) The diverse population of claim 1, further comprising unique labels having a diversity selected from a group consisting of about 40, 60, 80, 100, 120 and 140.
  - 5. (Original) The diverse population of claim 1, further comprising about 150.
- 6. (Original) The diverse population of claim 1, wherein said labels are fluorescent.
- 7. (Currently Amended) A diverse population of uniquely labeled probes, comprising about thirty or more target specific nucleic acid probes each attached to a unique label bound to a nucleic acid, label monomers of said unique labels being attached to nucleotides in a 1:1 correspondence.
- 8. (Original) The diverse population of claim 7, wherein each of said unique labels further comprises about the same unit signal, or a multiple thereof.
- 9. (Original) The diverse population of claim 7, wherein each of said unique labels further comprises a mixture of two or more different labels.

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10. (Original) The diverse population of claim 7, further comprising a diversity of different labels selected from a group consisting of about 50, 100, 200, 500, 1,000, 2,000,  $5,000, 1 \times 10^4$  and  $3 \times 10^4$ .

- 11. (Original) The diverse population of claim 7, further comprising about  $1 \times 10^5$ .
- 12. (Original) The diverse population of claim 7, wherein said labels are fluorescent.
- 13. (Original) The diverse population of claim 7, wherein said target specific nucleic acid further comprises said nucleic acid bound to said unique label.
- 14. (Original) The diverse population of claim 7, further comprising two attached populations of nucleic acids, one population of nucleic acids comprising said thirty or more target specific nucleic acid probes, and a second population of nucleic acids comprising said nucleic acid bound by a unique label.
- 15. (Original) The diverse population of claim 7, further comprising a nucleic acid species selected from the group consisting of a specifier, an antispecifier, a genedigit, an anti-genedigit and a dendrimer.

Claims 16-77 (canceled).

- 78. (Currently Amended) A nucleic acid labeling kit, comprising a set of genedigits, a set of anti-genedigits and a unique set of labels bound to a nucleic acid molecule by attachment of label monomers of said unique labels to nucleotides in a 1:1 correspondence.
  - 79. (Original) The kit of claim 78, further comprising a specifier.
  - 80. (Original) The kit of claim 78, further comprising a dendrimer.
- 81. (Original) The kit of claim 78, wherein said unique label further comprises a ratio of two different labels.

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- 82. (Original) The kit of claim 78, wherein said unique label is fluorescent.
- 83. (Original) The kit of claim 78, further comprising a diverse population of unique labels.
- 84. (Original) The kit of claim 83, wherein said diversity is selected from the group consisting of 50, 100, 150, 200, 500, 1,000, 2,000, 5,000,  $1x10^4$ ,  $3x10^4$  and  $1x10^5$ .